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PPG INDUSTRIES INC
INTELLECTUAL PROPERTY DEPT
ONE PPG PLACE
PITTSBURGH, PA 15272

EXAMINER

PIZIALI, ANDREW T

ART UNIT	PAPER NUMBER
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1775

DATE MAILED: 06/25/2003

17

Please find below and/or attached an Office communication concerning this application or proceeding.

AS-A

Office Action Summary

Application No.

09/714,166

Applicant(s)

MEDWICK ET AL.

Examiner

Andrew T Piziali

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18, 20-28 and 32-47 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18, 20-28 and 32-47 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11, 13. 6) ☐ Other: _____

DETAILED ACTION

Claim Objections

1. Claim 5 recites the limitation "the one or more metal oxides" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. It appears that the applicant intended for claim 5 to depend on claim 4, rather than on claim 2. Further clarification is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-9, 11, 13-15, 32-34, 36 and 38-47 are rejected under 35 U.S.C. 102(e) as being anticipated by USPN 6,045,896 to Boire et al. (hereinafter referred to as Boire).

Regarding claims 1-9, 11, 13-15, 32-34, 36 and 38-45, Boire disclose a solar control article comprising a substrate (1), a first dielectric antireflective multilayer (2a and 2b), a first infrared reflective layer (3), a first primer layer (4), a second dielectric antireflective multilayer (5a and 5b), a second infrared reflective layer (6), a second primer layer (7), a third dielectric antireflective layer (8a) and a protective overcoat layer (8b). Boire discloses that the solar control article may possess a visible light transmittance of from 50 to 85% and a reflectance less than 20% (see entire document including Figure 1 and column 9, lines 15-23).

Boire fails to specifically mention a shading coefficient or U value, but considering the substantially identical coated article disclosed by Boire, compared to the claimed coated article, it appears that the coated article of Boire would possess the claimed shading coefficient.

The Patent and Trademark Office can require applicants to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35 U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, *In re Best, Bolton, and Shaw*, 195 USPQ 431 (CCPA 1977).

Regarding claims 4-7, 36, 39 and 45-46 Boire discloses that the dielectric antireflective layers may comprise multilayers and specifically discloses that one or more of the antireflective multilayers may comprise zinc oxide/zinc stannate (column 7, lines 19-52).

Regarding claims 8, Boire discloses that the infrared reflective layers may comprise silver (column 3, lines 26-38).

Regarding claims 9, 11 and 38, Boire discloses that the first dielectric antireflective layer, comprising layers 2a and 2b, may have a thickness between 55 and 450A (column 4, lines 54-63 and column 7, lines 19-52), the first infrared reflective layer may have a thickness of between 80 and 120A (Table 3), the primer layers may have a thickness of between 5 and 15A (Table 3), the second dielectric antireflective layer, comprising layers 5a and 5b, may have a thickness of between 55 and 450A (column 4, lines 54-63 and column 7, lines 19-52), the second infrared

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reflective layer may have a thickness of between 80 and 120A (Table 3), the third dielectric antireflective layer may have a thickness of between 20 and 300A (paragraph bridging columns 5 and 6), and the protective overcoat layer may have a thickness of between 5 and 200A (column 7, lines 19-52).

Regarding claim 14, Boire discloses that the substrate may be glass (Examples).

Regarding claims 15 and 40-42, Boire discloses that article may be used in an insulated glass unit (column 8, lines 47-64).

Regarding claim 44, the protective coating of Boire is temporary because if one desired, it could be removed.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 10, 12, 16-18, 20-25, 27-28, 35, 37, 43 and 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boire (as applied to the claims above).

Regarding claims 10, 12, 16-18, 20-25, 27-28, 35, 37, 43 and 46-47, Boire discloses that the first dielectric antireflective layer, comprising layers 2a and 2b, may have a thickness between 55 and 450A (column 4, lines 54-63 and column 7, lines 19-52), the first infrared reflective layer may have a thickness of between 80 and 120A (Table 3), the primer layers may have a thickness of between 5 and 15A (Table 3), the second dielectric antireflective layer, comprising layers 5a and 5b, may have a thickness of between 55 and 450A (column 4, lines 54-

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63 and column 7, lines 19-52), the second infrared reflective layer may have a thickness of between 80 and 120A (Table 3), the third dielectric antireflective layer may have a thickness of between 5 and 200A and the protective overcoat layer may have a thickness of 250A (Table 3). It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the layer thicknesses, because it is understood by one of ordinary skill in the art that the layer thicknesses determine properties such as transmittance, emissivity, and color and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claims 20-23 and 25, Boire discloses that the dielectric antireflective layers may comprise multilayers and specifically discloses that one or more of the antireflective multilayers may comprise zinc oxide/zinc stannate (column 7, lines 19-52).

Regarding claim 24, Boire discloses that the infrared reflective layers may comprise silver (column 3, lines 26-38).

Regarding claim 28, Boire discloses that article may be used in an insulated glass unit (column 8, lines 47-64).

6. Claims 26 and 46-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boire as applied to claims 10, 12, 16-18, 20-25, 27-28, 35, 37, 43 and 46-47 above, and further in view of USPN 5,821,001 to Arbab et al. (hereinafter referred to as Arbab).

Regarding claim 26, Boire discloses that the primer layer may be niobium (Examples), but does not specifically mention titanium. Arbab discloses that the primer layer may include titanium, because titanium acts as a sacrificial layer to protect the functional layer (column 7, lines 5-11). It would have been obvious to one having ordinary skill in the art at the time the

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invention was made to use titanium for the primer layers of Boire, as disclosed by Arbab, because a titanium layer is functionally equivalent to a niobium layer in that it is capable of protecting the functional layer.

Regarding claim 46-47, Arbab discloses that a dielectric antireflective layer may comprise zinc stannate/zinc oxide (column 10, lines 11-24) and further discloses that the zinc oxide layer may have a thickness of between 51 and 65A (column 19, lines 28-37 and column 11, lines 54-65). It would have been obvious to one having ordinary skill in the art at the time the invention was made to make one or more of the antireflective multilayers from any suitable material, such as a zinc stannate/zinc oxide antireflective multilayer, as disclosed by Arbab, because it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use.

It is the examiner's position that the article of the prior art is identical to or only slightly different than the claimed article prepared by the method of the claim 46. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show obvious difference between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983). The prior art either anticipated or strongly suggested the claimed subject matter. It is noted that if the applicant intends to rely on Examples in the specification or in a submitted declaration to show non-obviousness, the

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applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with the prior art.

7. Claims 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Boire as applied to claims 1-9, 11, 13-15, 32-34, 36 and 38-45 above, and further in view of USPN 5,776,603 to Zagdoun et al. (hereinafter referred to as Zagdoun).

Zagdoun discloses that it is known in the art to mount a coated glass article between two substrates with a gas-filled space defined there between for reinforced thermal insulation (column 1, lines 30-42). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the glass article of Boire in a dual glass plate arrangement with a gas-filled space, as disclosed by Zagdoun, because the article would possess reinforced thermal insulation suitable for many applications.

8. Claim 42 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boire as applied to claims 1-9, 11, 13-15, 32-34, 36 and 38-45 above, and further in view of Zagdoun and USPN 4,863,540 to Catalano et al. (hereinafter referred to as Catalano).

Zagdoun discloses that it is known in the art to mount a coated glass article between two substrates with a gas-filled space defined there between for reinforced thermal insulation (column 1, lines 30-42). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the glass article of Boire in a dual glass plate arrangement with a gas-filled space, as disclosed by Zagdoun, because the article would possess reinforced thermal insulation suitable for many applications.

Zagdoun does not mention the use of one or more polymeric films placed in the gap

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between the substrates, but Catalano discloses that a polymeric film may be deposited on a glass substrate, in a glass sandwich structure (column 3, lines 32-35), to produce a colored or tinted glass article. It would have been obvious to one having ordinary skill in the art at the time the invention was made to place a polymeric film in the gap of the article disclosed by Boire in view of Zagdoun, because the polymeric film may provide the article with a specific color.

9. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Boire as applied to claims 1-9, 11, 13-15, 32-34, 36 and 38-45 above, and further in view of USPN 4,489,134 to Yudenfriend.

Yudenfriend discloses that a removable protective layer may be applied to a film to prevent the film from forming blemishes or scratches during manufacturing (column 7, lines 3-21). It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a removable protective film to the coated article of Arbab, because the removable film would prevent the formation of blemishes and scratches during manufacturing or transportation of the article.

10. Claims 1-18, 20-28, 32-39 and 43-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over USPN 5,821,001 to Arbab.

Regarding claims 1-18, 20-28, 32-39 and 43-46, Arbab disclose a solar control article comprising a substrate, a first dielectric antireflective layer, a first infrared reflective layer, a first primer layer, a second dielectric antireflective layer, a second infrared reflective layer, a second primer layer, a third dielectric antireflective layer and a protective overcoat layer (see entire document including column 9, line 30 through column 10, line 10). Arbab discloses, in

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examples, that the solar control article may possess a visible light transmittance of between 76.6 and 84%. Arbab fails to mention the specific shading coefficient or reflectance of the example.

Arbab discloses that the choice of the layer thicknesses is based on the desired color and emissivity of the product, as well as manufacturing related issues (column 20, lines 24-31).

Considering the substantially identical coated article disclosed by Arbab, compared to the claimed coated article, it appears that the coated article of Arbab would possess the claimed properties as a result of adjusting the layer thicknesses. It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the thicknesses, because it is understood by one of ordinary skill in the art that the layer thicknesses determine properties such as transmittance, emissivity, and color and because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claims 4-7, 20-23, 25, 36, 39 and 45-46, Arbab discloses that the first dielectric antireflective layer may comprise zinc stannate/zinc oxide, the second dielectric layer may comprise zinc oxide/zinc stannate/zinc oxide, and the third dielectric antireflective layer may comprise zinc oxide/zinc stannate (column 10, lines 11-24).

Regarding claims 8 and 24, Arbab discloses that the infrared reflective layers may comprise silver (column 10, line 11-20).

Regarding claims 9-12, 16 and 37-38, Arbab discloses that the first dielectric antireflective layer may have a thickness of 320A, the first infrared reflective layer may have a thickness of 90A, the primer layers may have a thickness of 8 to 50A, the second dielectric antireflective layer may have a thickness of 805A, the second infrared reflective layer may have a thickness of 130A, the third dielectric antireflective layer may have a thickness of 270A and

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the protective overcoat layer may have a thickness of 30A (column 7, lines 12-39 and column 19, line 28 through column 20, line 16). As addressed above, it would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the thicknesses, because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

Regarding claim 14, Arbab discloses that the substrate may be glass (column 10, lines 11-20).

Regarding claims 15, 28 and 47, Arbab discloses that article may be used in an insulated glass unit (column 13, line 61-62).

Regarding claims 17 and 35, the example given by Arbab produces an article with a substantially neutral color (column 20, lines 24-31).

Regarding claim 26, Arbab discloses that the primer layer may include titanium (column 10, lines 11-20).

Regarding claim 27, Arbab discloses that the protective overcoat layer may comprise titanium dioxide (column 20, lines 15-16).

Regarding claim 44, the protective coating of Arbab is temporary because if one desired it could be removed.

Regarding claim 46, Arbab discloses that the first dielectric antireflective layer may comprise zinc stannate/zinc oxide (column 10, lines 11-24) and further discloses that the zinc oxide layer may have a thickness of $58 \pm 7 \text{ \AA}$ (column 19, lines 28-37 and column 11, lines 54-65).

It is the examiner's position that the article of Arbab is identical to or only slightly different than the claimed article prepared by the method of the claim 46. Even though product-

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by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process. *In re Thorpe*, 227 USPQ 964, 966 (Fed. Cir. 1985). The burden has been shifted to the applicant to show obvious difference between the claimed product and the prior art product. *In re Marosi*, 218 USPQ 289 (Fed. Cir. 1983). Arbab either anticipated or strongly suggested the claimed subject matter. It is noted that if the applicant intends to rely on Examples in the specification or in a submitted declaration to show non-obviousness, the applicant should clearly state how the Examples of the present invention are commensurate in scope with the claims and how the Comparative Examples are commensurate in scope with the Arbab.

11. Claims 40-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arbab as applied to claims 1-18, 20-28, 32-39 and 43-46 above, and further in view of USPN 5,776,603 to Zagdoun.

Arbab does not mention the specific IG unit layout, but Zagdoun discloses that it is known in the art to mount a coated glass article between two substrates with a gas-filled space defined there between for reinforced thermal insulation (column 1, lines 30-42). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the glass article of Arbab in a dual glass plate arrangement with a gas-filled space, because this article possesses reinforced thermal insulation suitable for many applications.

Arbab discloses that the choice of the layer thicknesses is based on the desired color and emissivity of the product, as well as manufacturing related issues (column 20, lines 24-31).

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Considering the substantially identical coated article disclosed by Arbab in view of Zagdoun, compared to the claimed coated article, it appears that the coated article of Arbab in view of Zagdoun would possess the claimed properties as a result of adjusting the layer thicknesses. It would have been obvious to one having ordinary skill in the art at the time the invention was made to adjust the thicknesses, because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art.

12. Claims 42 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arbab as applied to claims 1-18, 20-28, 32-39 and 43-46 above, and further in view of Zagdoun and USPN 4,863,540 to Catalano:

Arbab does not mention the specific IG unit layout, but Zagdoun discloses that it is known in the art to mount a coated glass article between two substrates with a gas-filled space defined there between for reinforced thermal insulation (column 1, lines 30-42). It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the glass article of Arbab in a dual glass plate arrangement with a gas-filled space, because this article possesses reinforced thermal insulation suitable for many applications.

Zagdoun does not mention the use of one or more polymeric films placed in the gap between the substrates, but Catalano discloses that a polymeric film may be deposited on a glass substrate, in a glass sandwich structure (column 3, lines 32-35), to produce a colored or tinted glass article. It would have been obvious to one having ordinary skill in the art at the time the invention was made to place a polymeric film in the gap of the article disclosed by Arbab in view of Zagdoun, because the polymeric film may provide the article with a specific color.

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13. Claims 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Arbab as applied to claims 1-18, 20-28, 32-39 and 43-46 above, and further in view of USPN 4,489,134 to Yudenfriend.

Yudenfriend discloses that a removable protective layer may be applied to a film to prevent the film from forming blemishes or scratches during manufacturing (column 7, lines 3-21). It would have been obvious to one having ordinary skill in the art at the time the invention was made to apply a removable protective film to the coated article of Arbab, because the removable film would prevent the formation of blemishes and scratches during manufacturing or transportation of the article.

Response to Arguments

14. Applicant's arguments filed 5/14/2003 have been fully considered but they are not persuasive.

The applicant asserts that the coated article of Arbab has a high transmission and that the currently claimed coated article has a medium transmission. The applicant asserts that one skilled in the art would not be motivated to modify the layer thicknesses of Arbab to make a coated article having a transmission other than a high visible light transmission. The examiner respectfully disagrees. The examiner directs the applicant to another cited reference, USPN 6,045,896 to Boire. Boire discloses that it is known to vary the thickness of the layers of a low emissivity coated article to obtain a visible light transmission value between 50 and 85% (column 9, lines 15-23). Boire discloses that low emissivity coatings are intended for a variety of uses, including high and medium transmittance uses (column 1, lines 15-21). The examiner asserts that it would have been obvious to one having ordinary skill in the art at the time the

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invention was made to adjust the thicknesses of the layers of Arbab, to create a high or medium transmittance coated article, because low emissivity coated articles are desired for both high and medium transmittance applications.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T Piziali whose telephone number is (703) 306-0145.

The examiner can normally be reached on Monday-Friday (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on (703) 308-3822. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-5665.



atp
June 13, 2003

Andrew T Piziali
Examiner
Art Unit 1775


DEBORAH JONES
SUPERVISORY PATENT EXAMINER